UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,169	02/01/2001	Thomas Henry Tichy	CTS-2157	7279

7590 04/01/2004

Mark W. Borgman
CTS Corporation
905 West Boulevard North
Elkhart, IN 46514

EXAMINER	
NELSON, ALECIA DIANE	

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/775,169	TICHY ET AL.	
	Examiner	Art Unit	
	Alecia D. Nelson	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. ***Claims 16-17*** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **Claim 16** recites that the cursor control device is disabled during the activation of the tactile feedback mechanism for a *predetermined time period*. Such a *predetermined time period* is not disclosed in specification as originally filed and thereby considered new matter. As disclosed by the specification the time period in which the cursor control device is disabled is during the activation period of the tactile feedback mechanism. **Claim 17** is rejected as being dependent on a rejected base claim.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. ***Claims 1-6 and 16-17*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. With reference to **claims 1 and 16**, the claim fails to particularly point out or claim how the suppressing, or disabling, the operation of the cursor control apparatus is carried out, i.e. it is not known if the suppressing operation is carried out by the suppression circuit or by some other means which would provide suppressing the operation of the cursor control apparatus. Further, it is not clear as to if the suppressing circuit is suppressing the operation of the cursor being displayed or the actual cursor controller. Specifically in **claim 1**, suppressing the operation of the cursor control apparatus is not claimed to be a function of the suppression circuit, therefore the user not moving the cursor control apparatus or moving his/her hand from the cursor control apparatus would also provide suppressing the operation of the cursor control apparatus whether it be suppressing the operation of the cursor being displayed or the actual cursor controller. **Claims 2-6 and 17** are rejected for being dependent on a rejected base claim. All of the claims will be rejected as best understood by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. ***Claims 1-4, 7, and 11-15*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al (U.S. Patent Application Publication No. 2002/0003528).

With reference to **claims 1 and 7,** Rosenberg et al. teaches a cursor control system (12) comprising a cursor control apparatus (62) for receiving user inputs and providing signals indicative of the user input (see paragraphs 57-58); a tactile feedback apparatus (64); providing a driver circuit (interface (138) provides forces signals from the microprocessor to drive the actuators) coupled to the tactile feedback apparatus (64) (see paragraph 83); providing a suppression circuit (local microprocessor, 130) coupled to the driver circuit and the cursor control apparatus (see paragraphs 72, 107); suppressing the operation of the of cursor control (disturbance filtering) during the activation of the tactile feedback apparatus (see paragraph 122); starting the tactile

feedback apparatus; stopping the tactile feedback apparatus; and allowing the operation of the cursor control apparatus (see paragraph 102).

While Rosenberg et al. teaches that the cursor control apparatus and the tactile feedback apparatus are coupled with one another in the mechanical apparatus (104), and also teaches that the cursor control apparatus and tactile feedback apparatus can be included together as a sensor/actuator pair transducer (see paragraph 83), thereby suggest the capability of coupling the two components.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the cursor control apparatus and tactile feedback apparatus to be coupled with one another as suggested by Rosenberg et al. in order to thereby provide input to computer systems and provide force feedback to the user.

With reference to **claims 2-4,** Rosenberg et al. teaches activating the tactile feedback apparatus in response to predefined user inputs from the cursor control apparatus, wherein the predefined user inputs is placement of the cursor over an active area graphical objects on the display device (20) (see paragraph 47).

With reference to **claims 11 and 13-15,** Rosenberg et al. teaches that the "disturbance filtering" allows the suppression circuit (microprocessor (130) which would store a set of machine-readable instructions) to filter oscillations and other disturbances out of position data before reporting it to the host computer. This reduces or eliminates

force-feedback-induced disturbances in cursor position that occur as a result of certain force sensations, such as vibrations (see paragraph 122).

With reference to **claim 12**, Rosenberg et al. teaches the usage of "clipped" forces, which allows movement of the mouse while refraining to detect cursor position (see paragraph 121, 127). It is also taught that it is possible to overlay multiple feedback forces (see paragraph 158). Thereby allowing suppression of unwanted vibration when applying the feedback and clipping cursor movement during the feedback operation.

8. ***Claims 5, 6, and 8-10*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. as applied to **claims 1 and 7** above and further in view of Barber et al. (U.S. Patent No. 5,973,670).

With reference to **claims 5, 6 and 8-10,** Rosenberg fails to teach the usage of a piezoelectric device for providing the tactile feedback, however does teach that it is possible to use other types of actuators (see paragraph 60).

Barber et al. teaches a cursor controller including a tactile generator, wherein the generator is activated when the cursor is located at a graphics object (see abstract). There is further taught the usage of a relay (42) or a piezoelectric element (52) used for generating a tactile signal (see column 4, lines 35-61). Barber et al. fails to specifically teach the range of the a.c. signal used to activate the piezoelectric device, however it

would be inherent to have an a.c. signal in a range sufficient enough to activate the device.

Therefore it would have been obvious for one having ordinary skill in the art at the time of the invention to allow the usage of a piezoelectric device to be used as the tactile feedback apparatus, wherein the piezoelectric device is to be activated by a sufficient a.c. signal in order for the device to generate tactile feedback, as taught by Barber et al. in a device similar to that which is taught by Rosenberg et al. including a tactile feedback apparatus to provide feedback to a user object when the user is navigating through a graphical environment.

9. ***Claims 16 and 17*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. in view of Barber et al. (U.S. Patent No. 5,973,670).

With reference to **claims 16 and 17,** Rosenberg et al. teaches a cursor control system (12) comprising a cursor control apparatus (62) for receiving user inputs and providing signals indicative of the user input (see paragraphs 57-58); a tactile feedback apparatus (64); sensing a predefined condition from the cursor control device; activating the tactile feedback mechanism in response to detecting the predefined condition (see paragraph 102); disabling (clipped spring force) the cursor control device during the activation of the tactile feedback mechanism for a pre-determined time period (when feedback is being applied) such that the cursor control device does not sense the operation of the tactile feedback mechanism during the activation of the tactile

feedback apparatus and enabling the cursor control device after the pre-determined time period (when feedback is not being applied) (see paragraphs 121,127).

Even though Rosenberg et al. teaches generating tactile feedback, there is no disclosure suggesting providing tactile feedback utilizing a piezoelectric material coupled to the cursor control device.

Barber et al. teaches a cursor controller including a tactile generator, wherein the generator is activated when the cursor is located at a graphics object (see abstract). There is further taught the usage of a relay (42) or a piezoelectric element (52) used for generating a tactile signal (see column 4, lines 35-61).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the piezoelectric device, similar to that which is taught by Barber et al. to be used in a device similar to that which, is taught by Rosenberg et al., in order to thereby provide a method and apparatus for tactilely stimulating a cursor control device when a cursor is controlled by the user in a graphical environment.

Response to Arguments

10. Applicant's arguments with respect to ***claims 1-17*** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is (703) 305-0143. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

adn/ADN
March 24, 2004

Amr Ahmad Awad
3-29-2004